

What is claimed:

1. An array comprising:

- a substrate having a plurality of addresses, each address comprising:
 - a nucleic acid encoding an amino acid sequence comprising a test amino acid sequence and an affinity tag;
 - a translation effector disposed thereon; and
 - a binding agent that recognizes the affinity tag.

2. The array of claim 1, wherein the binding agent is attached to the substrate.

3. An array comprising:

- a substrate with a plurality of addresses, each address comprising:
 - a polypeptide comprising a test amino acid sequence and an affinity tag;
 - a binding agent, that recognizes the affinity tag and is attached to the substrate.

4. The array of claim 3 wherein a translation extract is disposed thereon.

5. An array comprising:

- a substrate with a plurality of addresses, each address comprising:
 - a nucleic acid encoding an amino acid sequence comprising a test amino acid sequence and an affinity tag;
 - a binding agent that recognizes the affinity tag.

6. A method of providing an array of proteins, the method comprising:

- providing a substrate with a plurality of addresses
- providing at each address at least (i) a nucleic acid encoding an amino acid sequence comprising a test amino acid sequence and an affinity tag, and (ii) a binding agent that recognizes the affinity tag

7. A method of providing an array of proteins, the method comprising:

providing a substrate with a plurality of addresses, each address comprising (i) a nucleic acid encoding an amino acid sequence comprising a test amino acid sequence and an affinity tag, and (ii) a binding agent that recognizes the affinity tag;

contacting each address of the plurality with a translation effector to thereby translate the hybrid amino acid sequence;

maintaining the substrate under conditions permissive for the amino acid sequence to bind the binding agent

8. The method of evaluating a protein interaction:

providing a substrate with a plurality of addresses, each address comprising (i) a first nucleic acid encoding a hybrid amino acid sequence comprising a first amino acid sequence and an affinity tag, (ii) a binding agent that recognizes the affinity tag, and (iii) a second nucleic acid encoding a second amino acid sequence;

contacting each address of the plurality with a translation effector to thereby translate the hybrid amino acid sequence;

maintaining the substrate under conditions permissive for the hybrid amino acid sequence to bind binding agent;

detecting the presence of the second amino acid sequence at each of the plurality of addresses.

9. The method of evaluating a protein interaction:

providing a substrate with a plurality of addresses, each address comprising (i) a first nucleic acid encoding a hybrid amino acid sequence comprising a first amino acid sequence and an affinity tag, (ii) a binding agent that recognizes the affinity tag, and (iii) a second nucleic acid encoding a second amino acid sequence;

contacting each address of the plurality with a translation effector to thereby translate the first nucleic acid and the second nucleic acid;

maintaining the substrate under conditions permissive for the hybrid amino acid sequence to bind binding agent;

at each of the plurality of addresses, detecting at least one parameter that is dependent on interaction between a compound that includes the first amino acid sequence and a compound that includes the second amino acid sequence.

10. A method of producing a protein-interaction map for a plurality of amino acid sequences, the method comprising:

providing (i) a first plurality of nucleic acids, each encoding an amino acid sequence comprising an amino acid sequence of the plurality of amino acid sequences and an affinity tag; (ii) a second plurality of nucleic acids, each encoding an amino acid sequence comprising an amino acid sequence of the plurality of amino acid sequences and a recognition tag; and (iii) a substrate with a plurality of addresses and a binding agent that binds the affinity tag and is attached to the substrate;

disposing on the substrate, at each address, a nucleic acid of the first plurality and a nucleic acid of the second plurality;

contacting each address of the plurality with a translation effector to thereby translate the hybrid amino acid sequence;

maintaining the substrate under conditions permissive for the affinity tag to bind binding agent;

washing the substrate to remove the translation extract and unbound polypeptides; and

detecting the recognition tag at each of the plurality of addresses.

11. A method comprising:

providing a substrate comprising a providing a substrate comprising a plurality of addresses, each address of the plurality having a binding agent;

providing a plurality of nucleic acid sequences, each nucleic acid sequence comprising a sequence encoding a test amino acid sequence and an affinity tag that is recognized by the binding agent;

providing on a server a list of either (i) nucleic acid sequences of the plurality or (ii) subsets of the plurality;

transmitting the list across a network to a user;

receiving at least one selection of the list from the user;
disposing the one or more nucleic acid sequence corresponding to the selection on
an address of the plurality; and
providing the substrate to the user.

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